

FermiGrid Job Durations

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What and Why

- A VO by VO analysis of the VO Job Durations was undertaken to understand the potential opportunities for reducing the Condor preemption time.
 - The current preemption time is 48 hours.
 - This duration was selected by uscms for the CMS T1 facility, and was adopted on the remainder of FermiGrid without much in the way of additional analysis.
- This analysis is based on the Gratia data reported from all of the “fnal.gov” computing elements for all jobs that completed during the eight (8) day period 09-Jun-2009 through 16-Jun-2009 inclusive.

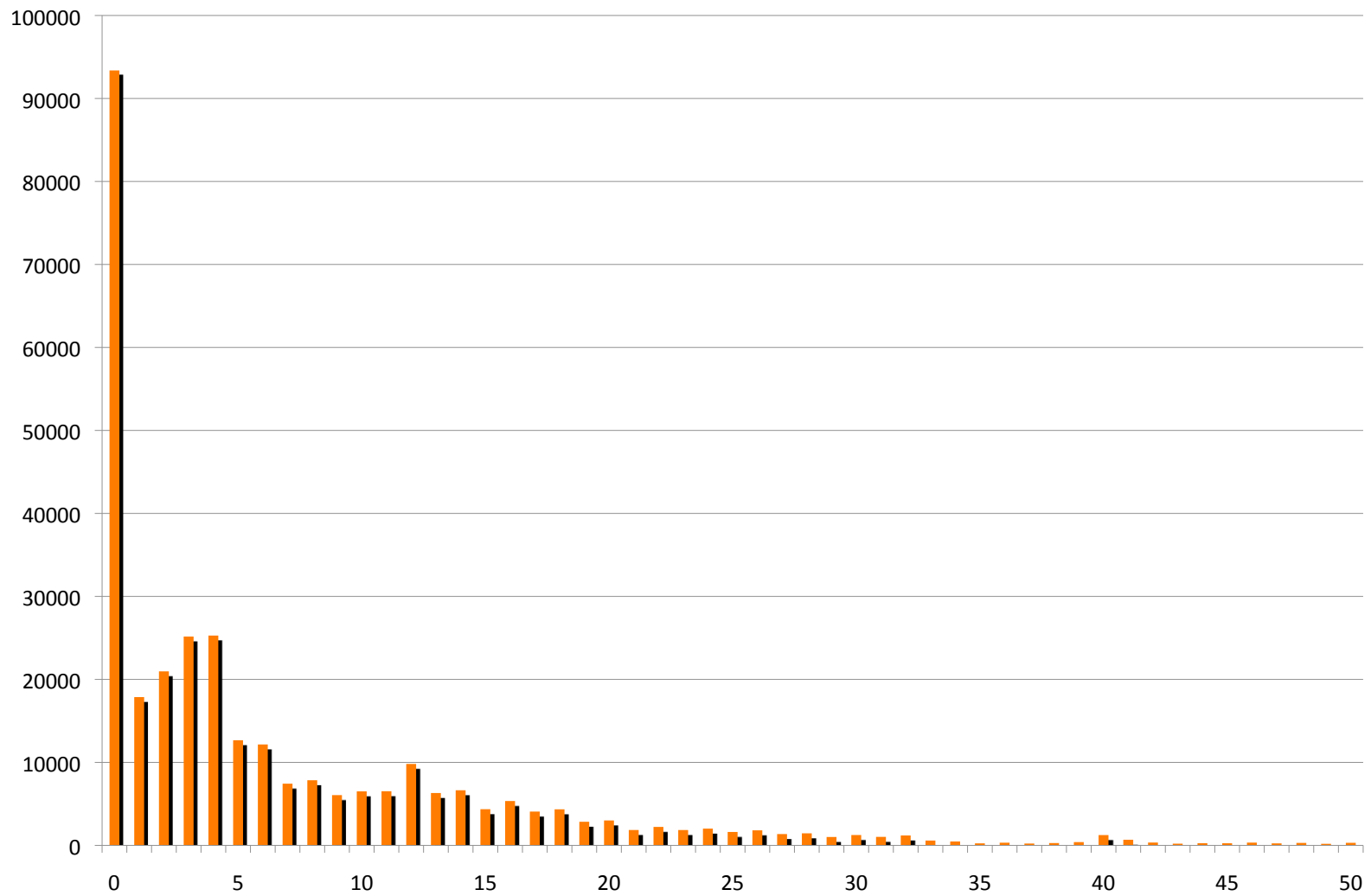
Special Thanks

- Thanks to Chris Green for developing the Gratia query to extract the foundation data for this analysis.

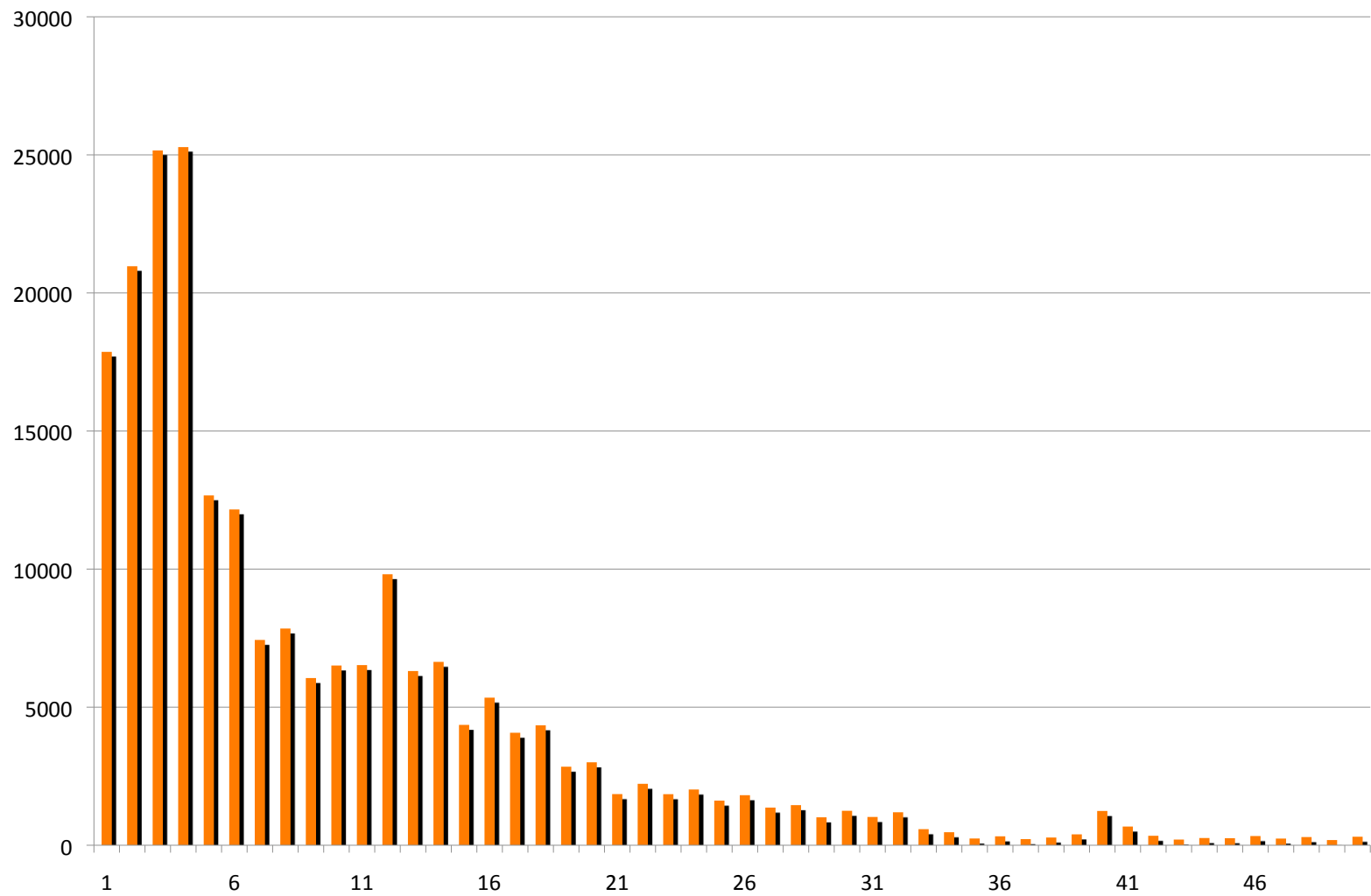
General Comments

- The following plots are the number of jobs vs the job duration on a VO by VO basis.
- When a plot has a significant pileup of data at zero hours, it is plotted a second time with the zero hour bin suppressed.

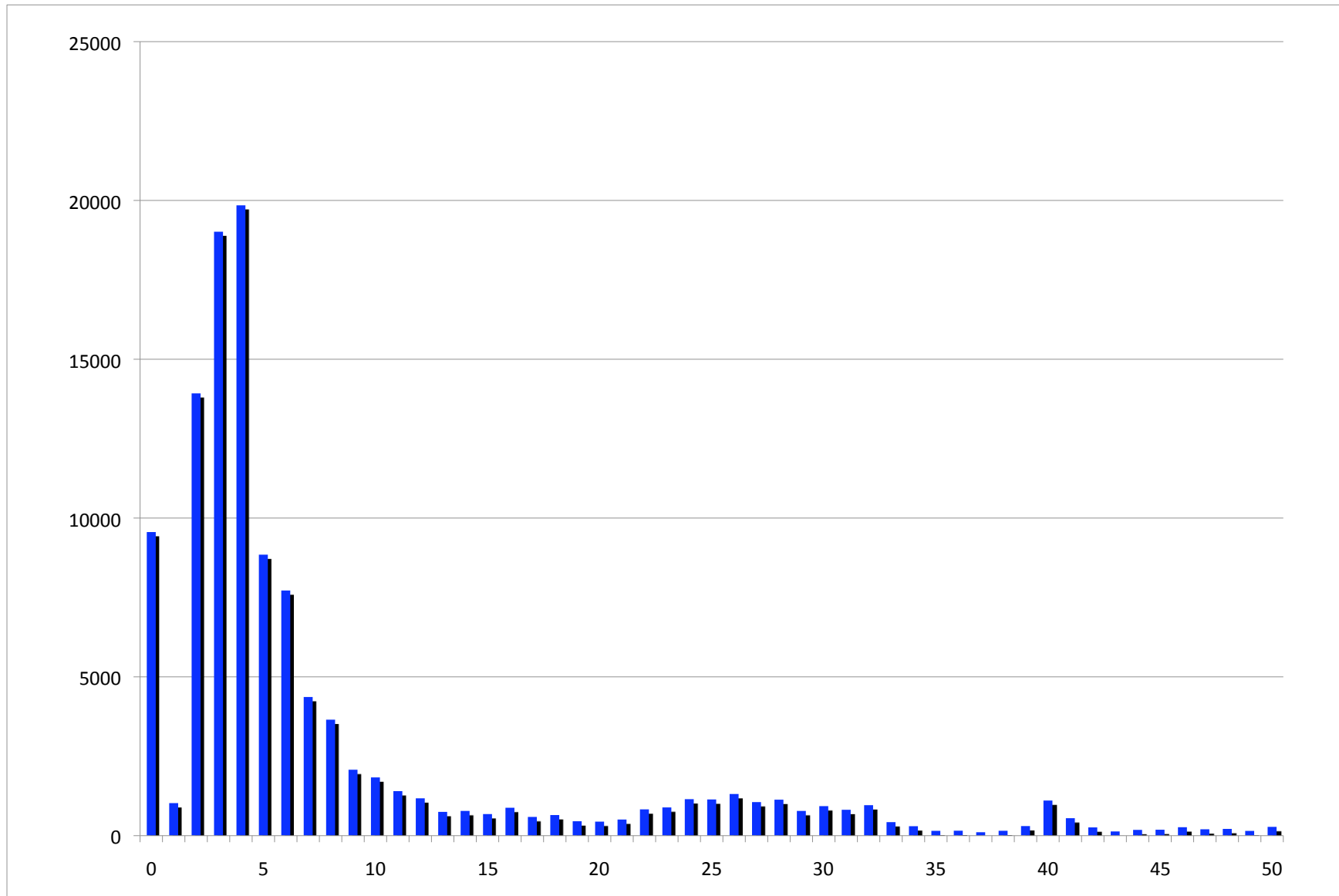
All FermiGrid



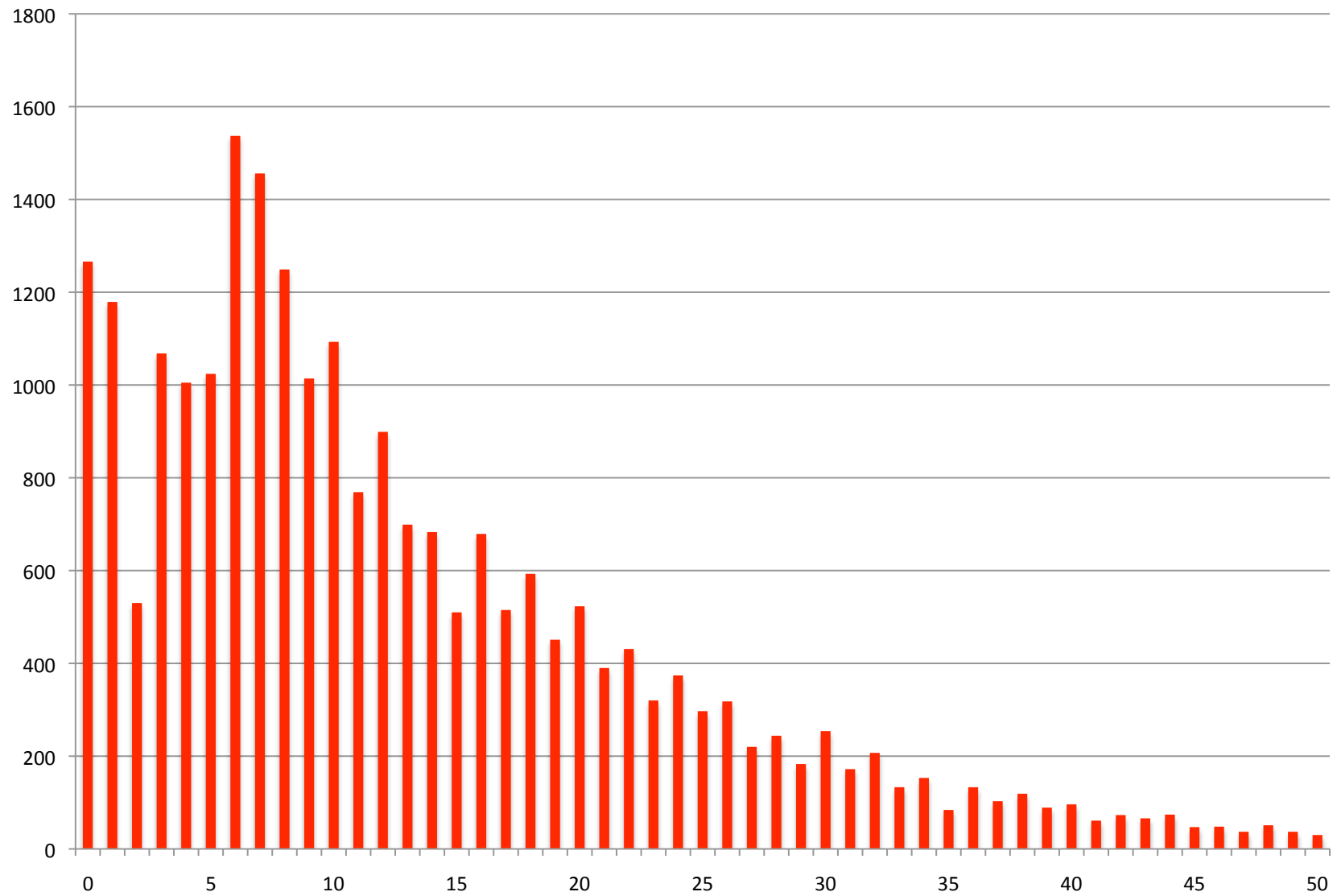
All FermiGrid (zero suppressed)



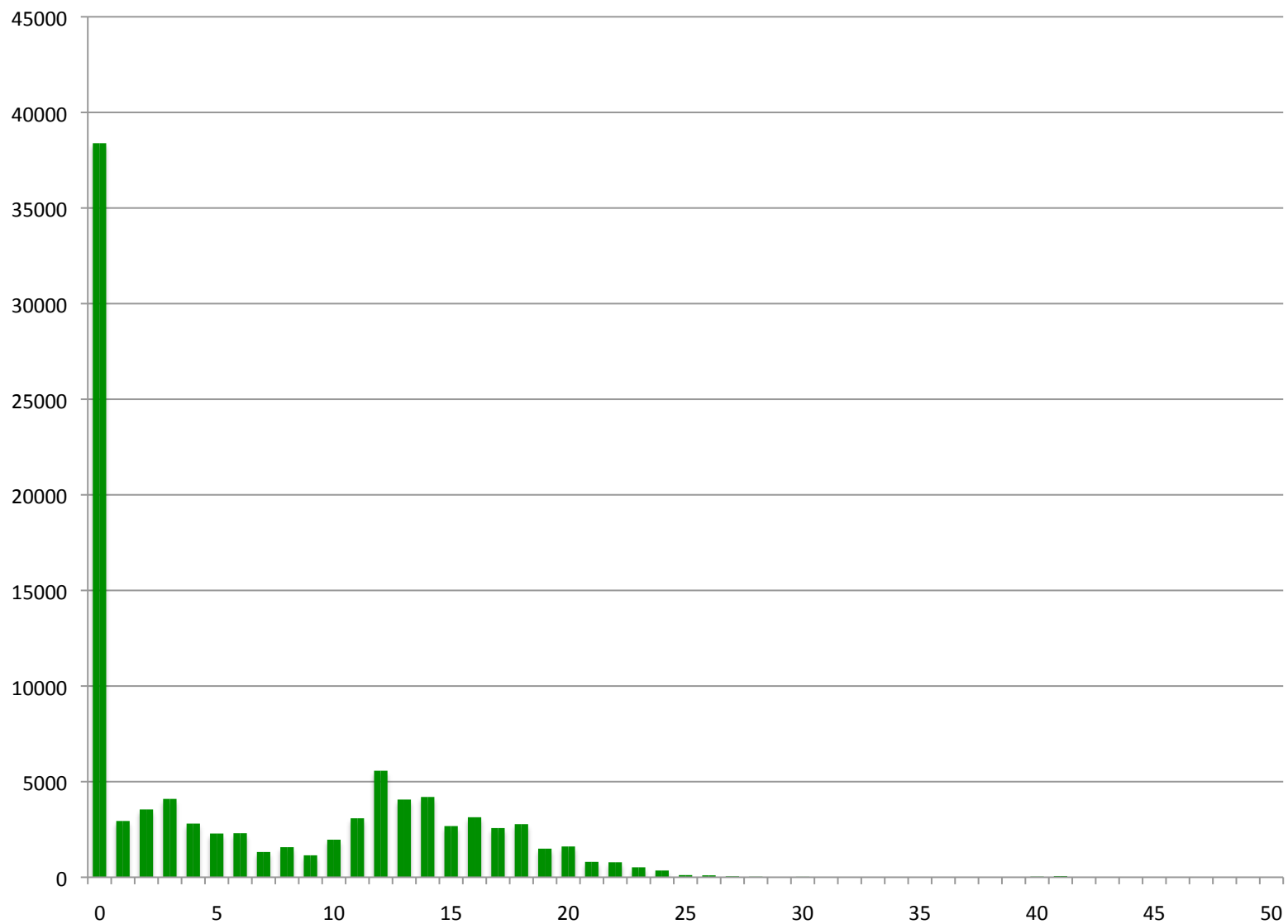
CDF VO Only



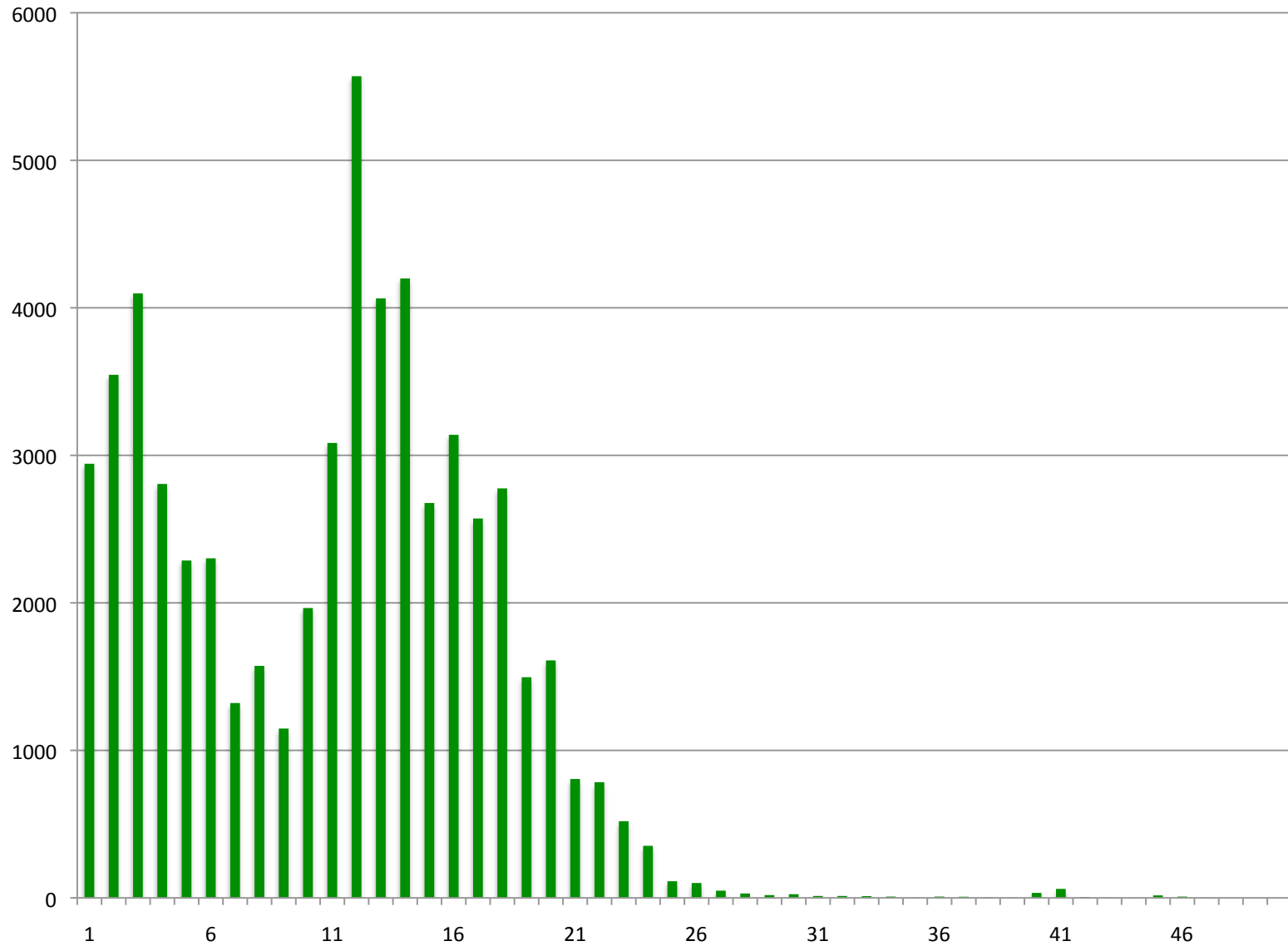
DZERO VO Only



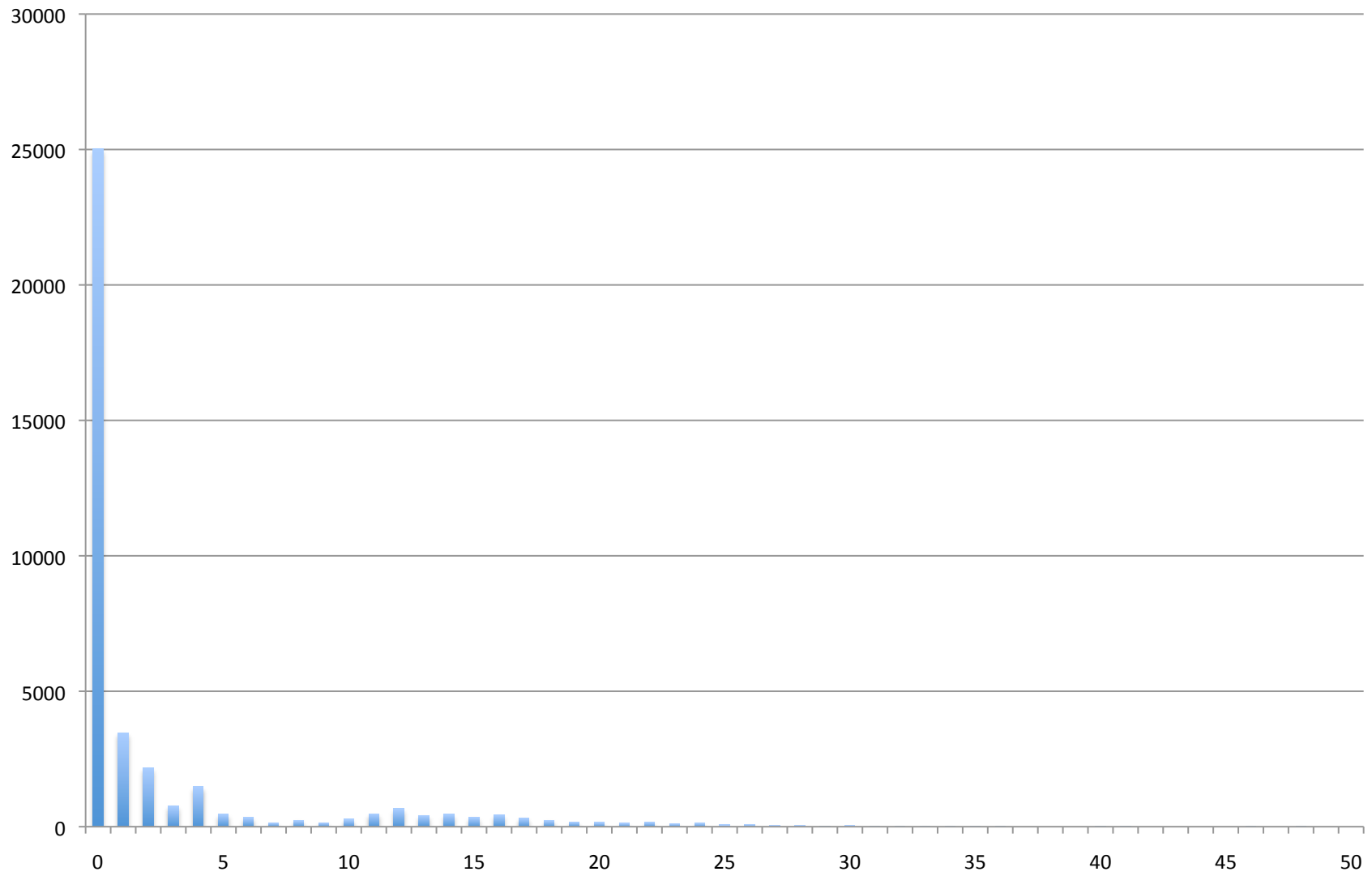
CMS VO Only



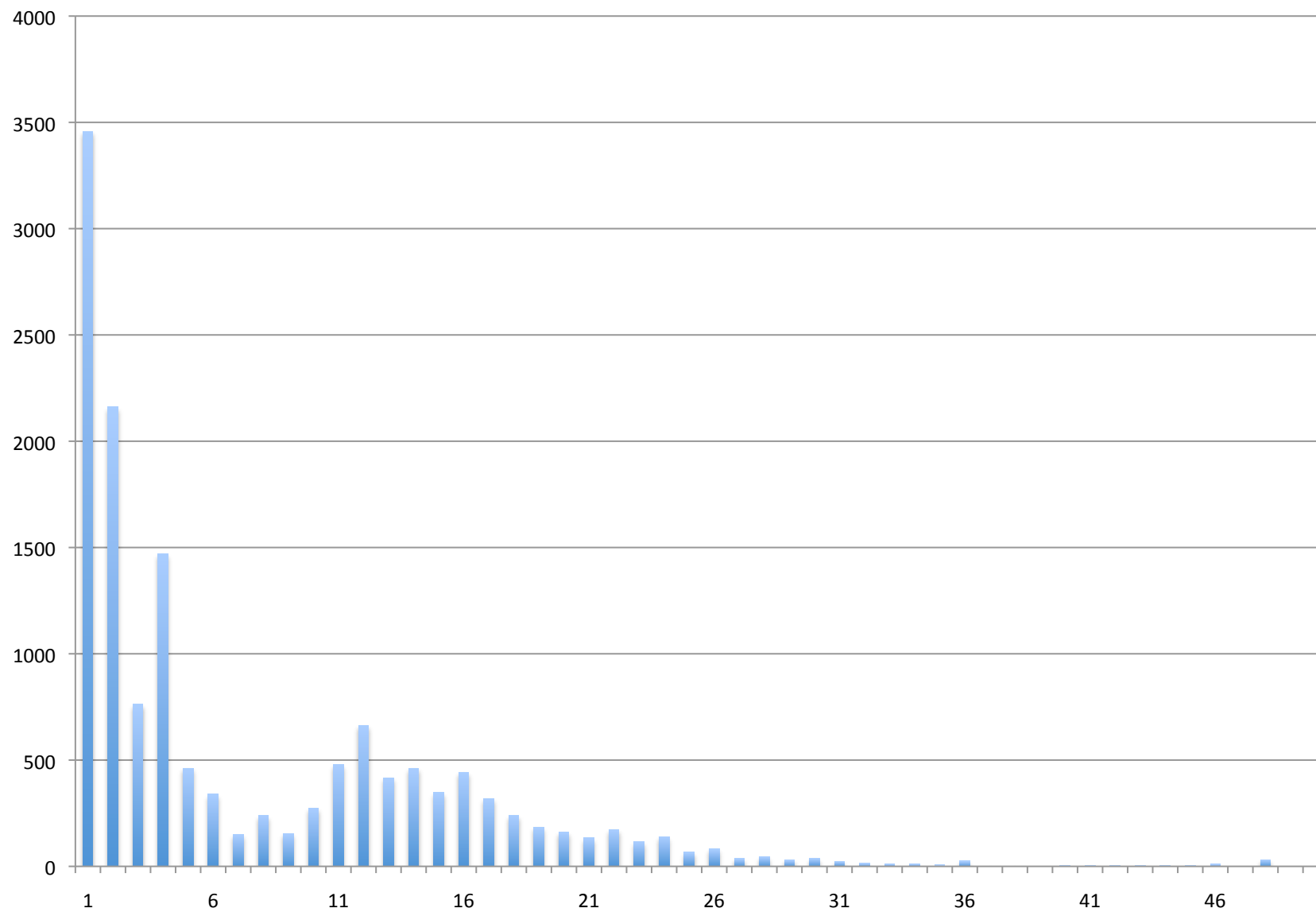
CMS VO Only (zero suppressed)



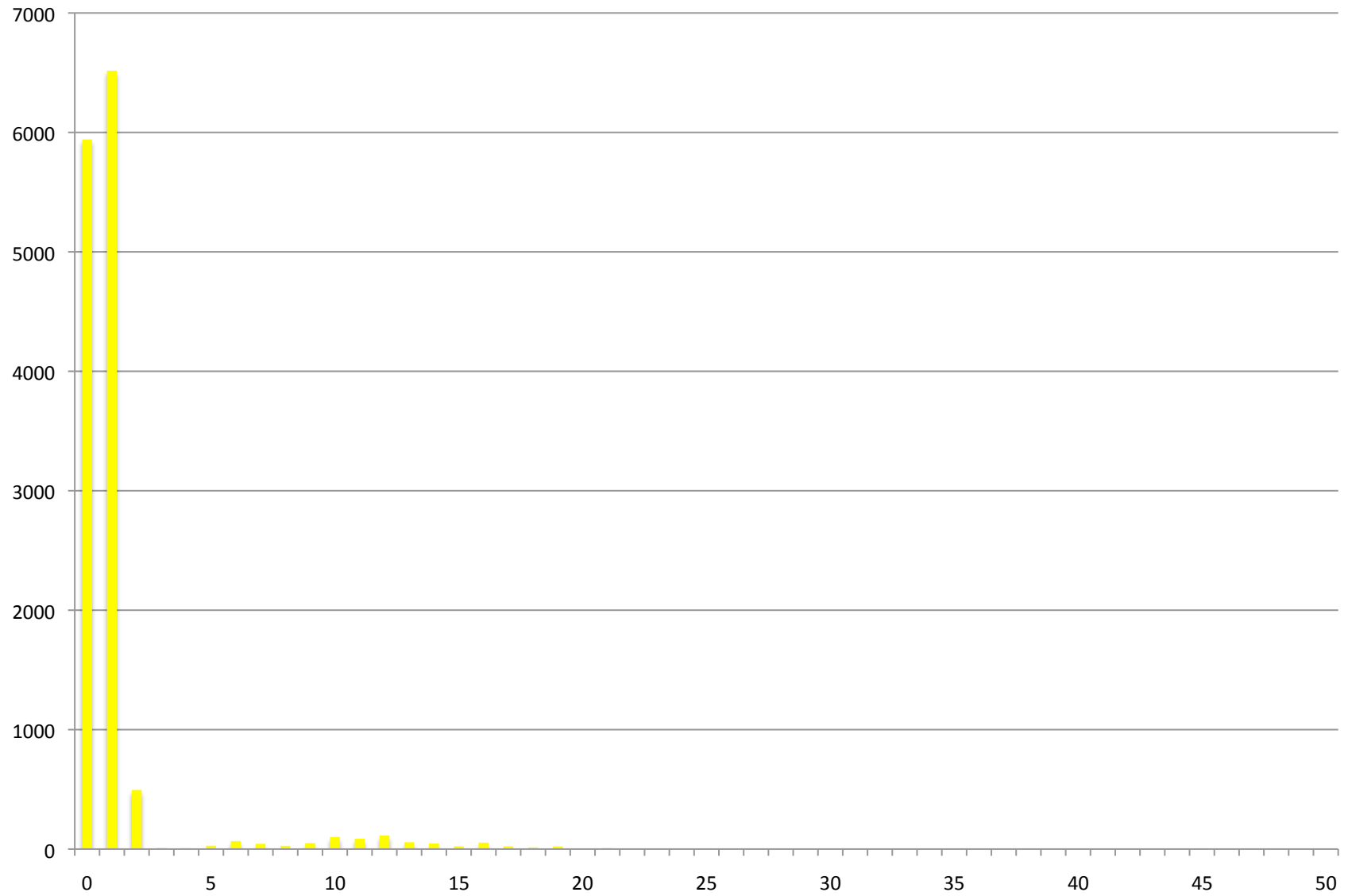
FERMILAB VO



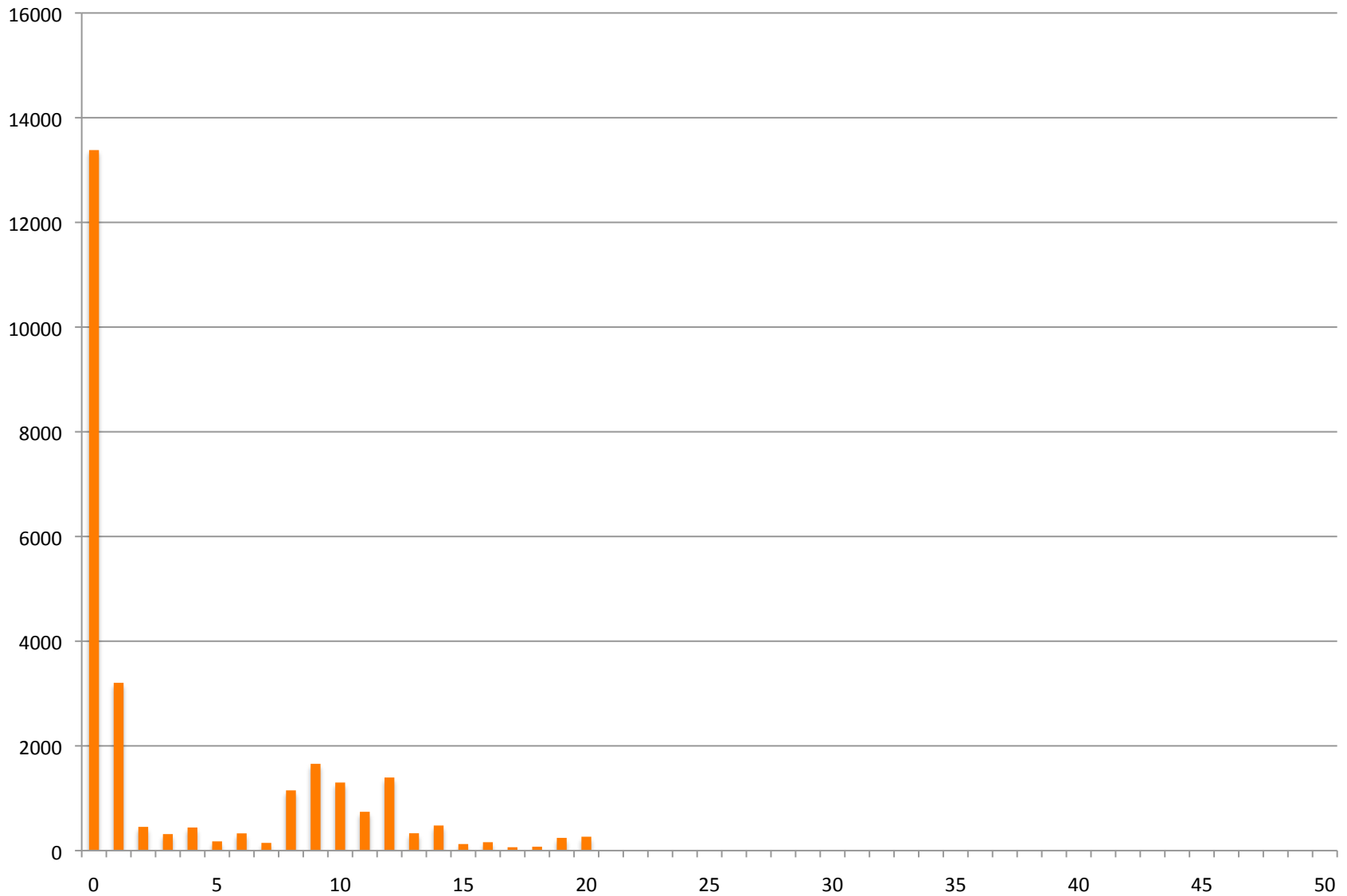
FERMILAB VO (zero suppressed)



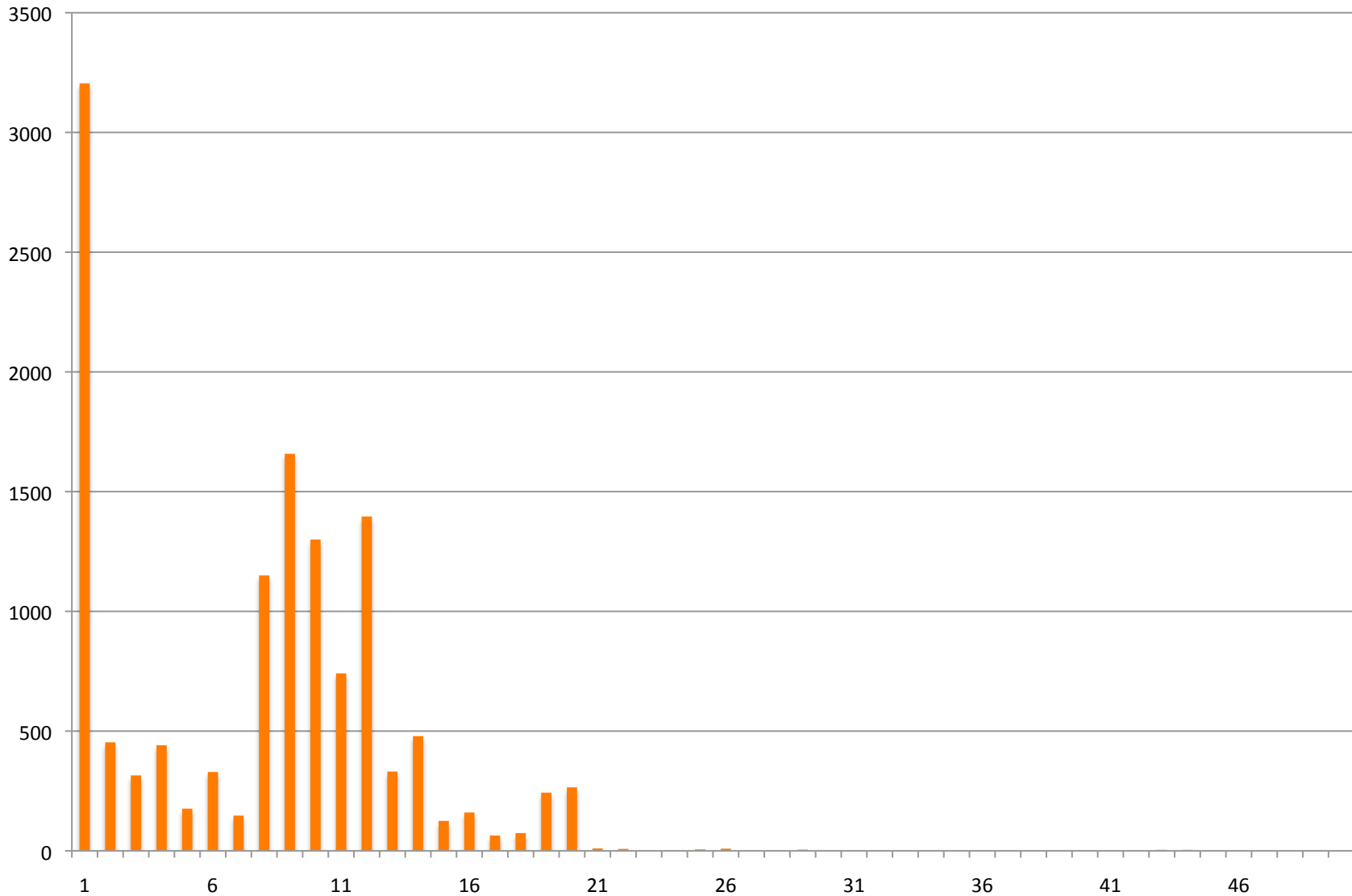
ILC VO



OSG Opportunistic VOs



OSG Opportunistic VOs (zero suppressed)



% Complete vs Job Duration (Hours)

VO	% complete at 6h (zero suppressed)	% complete at 12h (zero suppressed)	% complete at 18h (zero suppressed)	% complete at 24h (zero suppressed)
All	66.06% (51.70%)	80.12% (71.73%)	90.01% (85.79%)	94.40% (92.04%)
CDF	68.74% (65.04%)	81.22% (79.53%)	84.94% (83.59%)	88.61% (87.59%)
DZERO	32.26% (28.42%)	59.73% (57.45%)	75.33% (73.93%)	85.89% (85.09%)
CMS	58.37% (30.91%)	73.55% (56.10%)	93.67% (89.50%)	99.44% (99.07%)
Fermilab	85.85% (60.93%)	90.84% (74.70%)	96.51% (90.37%)	98.83% (96.76%)
ILC	95.01% (91.22%)	98.09% (96.63%)	99.67% (99.42%)	100.00% (100.00%)
OSG Opportunistic	69.05% (37.49%)	93.17% (86.20%)	97.82% (95.60%)	99.82% (99.63%)

Conclusions

- The Condor preemption time can be safely reduced from the current 48 hours to 24 hours without significant impact.
- Regardless of the preemption time, a cluster “stakeholder” should be able to reclaim ~60% of the opportunistically used slots within 6 hours.